

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/JP03/03858

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl.⁷ B01J35/04, B01D53/86, F01N3/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl.⁷ B01J21/00-38/74, B01D53/86, B01D53/94, B28B3/00-5/12,
F01N3/28

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	JP 2002-321210 A (Denso Corp.), 05 November, 2002 (05.11.02), Claims 6, 11, 13, 15; Par. Nos. [0025], [0049], [0064], [0075] to [0077]; Figs. 1, 6, 12 (Family: none)	1, 2, 7-15, 19, 21, 22, 25-31
X	JP 61-108507 A (Matsushita Electric Industrial Co., Ltd.),	1-4, 7, 8, 22, 26
Y	27 May, 1986 (27.05.86),	6, 19, 24, 25, 27-31
A	Claim 1; page 1, lower right column, lines 9 to 11; page 2, upper left column, lines 2 to 9; page 2, lower left column, line 16 to lower right column, line 6; Figs. 1, 3 (Family: none)	5, 20, 23

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
01 July, 2003 (01.07.03)Date of mailing of the international search report
15 July, 2003 (15.07.03)Name and mailing address of the ISA/
Japanese Patent Office

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/03858

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2-102004 A (NGK INSULATORS, LTD.), 13 April, 1990 (13.04.90), Page 4, upper left column, lines 10 to 18; Fig. 11 (Family: none)	1, 2, 7, 16, 19, 26 6, 19, 27-31
X	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 52419/1989 (Laid-open No. 142625/1990) (Usui Kokusai Sangyo Kaisha, Ltd.), 04 December, 1990 (04.12.90), Claims 1, 3; page 10, lines 7 to 15; Fig. 6 (Family: none)	1, 2, 7, 8, 17-19, 26 28, 29
Y	EP 1153649 A1 (NGK INSULATORS, LTD.), 14 November, 2001 (14.11.01), Par. No. [0014] & JP 2001-314762 A Par. No. [0014] & US 2001/56034 A1	6
Y	EP 1138892 A2 (NGK INSULATORS, LTD.), 04 October, 2001 (04.10.01), Par. Nos. [0052] to [0054]; Fig. 8 & JP 2001-280124 A Par. Nos. [0043], [0044]; Fig. 8 & US 2001/36427 A1	24, 25
Y	JP 9-173866 A (Nippon Soken, Inc.), 08 July, 1997 (08.07.97), Claims 1, 3 (Family: none)	27
Y	EP 661098 A2 (NGK INSULATORS, LTD.), 05 July, 1995 (05.07.95), Claims 14, 17, 18, 30; Figs. 8 to 10 & JP 7-232084 A Claims 14, 17, 18, 30; Figs. 8 to 10 & US 5538697 A	28, 29
Y	EP 976679 A1 (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.), 02 February, 2000 (02.02.00), Par. No. [0080]; Fig. 4 & JP 2000-44204 A Par. No. [0030]; Fig. 4	30
Y	JP 11-211371 A (Nippon Furnace Kogyo Kaisha, Ltd.), 06 August, 1999 (06.08.99), Par. No. [0029]; Figs. 3, 4 (Family: none)	31